

The theory of nuclear spin diffusion due to paramagnetic impurities in a diamagnetic crystal

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Abstract

The diffusion of nuclear magnetization inside a diffusion barrier, due to modulation of the fluctuation spin operator of a magnetic ion by the interaction between nuclei, is treated to third order of perturbation theory. Cross-relaxation transitions of two types are being modulated. These are the transitions in which a pair of nuclei is mutually reoriented either due to a dipole-dipole interaction between them or by the coupling of each nucleus to the electron spin. The relative effectiveness of these processes depends on the experimental conditions. © 1976 Plenum Publishing Corporation.

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